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STRATEGIC ENVIRONMENTAL ASSESSMENT IN TRÓIA (PORTUGAL)

F. ANDRADE[1], M.A. FERREIRA[2], N. GOMES[3], J. JOANAZ DE MELO[4], P. LEITÃO[5] & MANUEL JOÃO PINTO[6]

[1] Prof., [2] M.Sc., Marine Laboratory of Guia – Faculty of Sciences of Lisbon University, Estrada do Guincho, 2750-374 Cascais, Portugal. f.andrade@mail.telepac.pt; np51gi@mail.telepac.pt

[3] M.Sc., Department of Earth Sciences – Independent University, Av. Marechal Gomes da Costa, lt. 9, 1800-255 Lisboa, Portugal. ngomes@uni.pt

[4] Prof., Faculty of Sciences and Tecnhology of the New University of Lisbon Monte de Caparica, 2829-516 Caparica, Portugal. jjm@fct.unl.pt

[5] M.Sc., Beco dos Aciprestes à Bica, 8, 2º, 1200-006, Lisboa, Portugal. pjleitao@iol.pt

[6] B.Sc., Botanical Garden – Natural History Museum of Lisbon University, Rua da Escola Politécnica, 54, 1250-102 Lisboa, Portugal. mjpinto@fc.ul.pt

ABSTRACT

Over the last two decades, the Tróia peninsula (SW coast of Portugal) has been designated by the Portuguese authorities both as a protected area and as an area of tourism development. The private investor that took over the tourism developments in Tróia asked the Institute of Marine Research (IMAR) to undertake an SEA, to help frame the design and management of the future resort. SEA results were changed by local/central government decisions, granting "more" than stakeholder/owner's proposal, in terms of loads and densities. This process, as well as the main characteristics and results of the SEA, are presented and discussed.

1. INTRODUCTION

Strategic Environmental Assessment (SEA) promotes the integration of environmental and sustainability concerns in planning processes. SEA has been the object of scientific debate for almost two decades in such fora as the International Association for Impact Assessment.

It is called for under such laws and agreements as the Portuguese "Lei de Bases do Ambiente" (framework environment law, 1987), the UNECE Aarhus Convention (1998), European Directive 2001/42/CE, and the UNECE Kiev Protocol (2003).

Although SEA practice is recent and procedures vary widely, key features of SEA include: the evaluation of cumulative effects of multiple activities; the evaluation of major development alternatives and its consequences before essential decisions are made; ensuring adequate public participation in policy and planning processes; and setting guidelines for project-level environmental impact assessment.

In short, SEA is considered nowadays a key decision support tool in planning and management.

Over the last two decades, the Portuguese government has made several, sometimes not immediately convergent, political decisions for Tróia, namely by designating Tróia both as a protected area (by national and European law), and as an area of tourism development.

Within this political and legal context, the private investor that took over the tourism developments in Tróia, SONAE Turismo, asked the Institute of Marine Research (IMAR) to undertake a detailed and comprehensive SEA, to help frame the design and management of the future resort.

2. BACKGROUND: THE TRÓIA PENINSULA

The Tróia peninsula, on the Northwestern coast of Alentejo (Portugal) is a 20 km long sand spit on the mouth of the Sado estuary (Figure 1), formed by the coalescence, over the last centuries, of a number of barrier islands (Gomes 1992).

The Northern tip of the peninsula, through a process of prevailing Northward littoral drift, has been growing steadily over the last half century (Andrade *et al*. 1998; Ferreira *et al*. this volume).

Until the mid 1960's, the peninsula had virtually no human occupation. During the late 1960's, a model of tourism development similar to those taking place at the time in Southern Portugal and Spain – a product based on beach and sun, with towers built at the edge of the sea – was attempted in Tróia, aiming, upon completion, at a total of 65000 beds.

In the mid 1970's, a number of political, social, and natural factors, contributed to the decline and bankruptcy of the project, which eventually fell to the largest creditor – the Portuguese State. By then, an 18 hole golf course, 6 towers over 12 floors high, and a number of other accommodations and facilities had been built. Two of the towers were never completed or used, except as roosting and breeding accommodations for Free-tailed bat (*Tadarida teniotis*) and Pallid-swift (*Apus pallidus*), respectively (Espírito-Santo *et al*. 2003; Lecoq *et al*., 2003)!

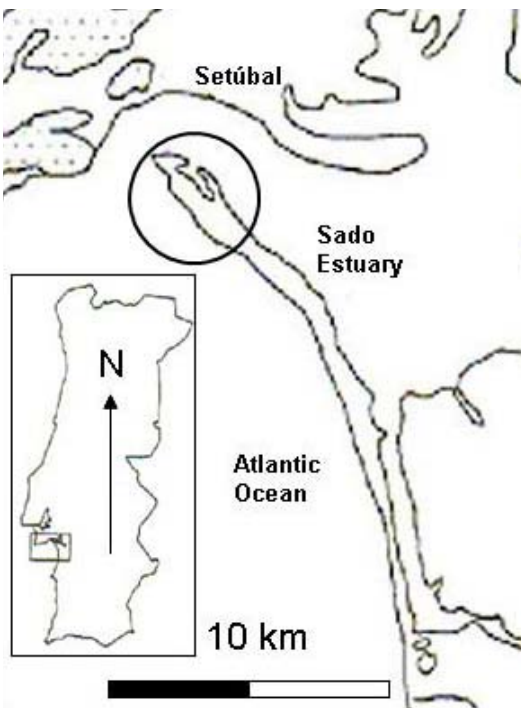

Figure 1. Location of Tróia on the SW Portuguese coast.

In 1980, the Portuguese government classified the Southern half of the peninsula as part of a new protected area – the Natural Reserve of the Sado Estuary.

In the early 1990's, the Portuguese government and the Grândola municipality decided to both revive and draft land use plans for the area: In 1993, a regional development plan (*PROTALI*) defined the peninsula as a Tourism Development Area (*ADT*) and allowed the construction of about 7300 tourism beds in the Northern part of the peninsula.

In 1996, the municipality published the PDM (Municipal Director Plan), which defined, in greater detail, the areas to be dedicated for tourism and, in 1997, the Portuguese government put the property out for bid.

The "package" included the possibility for the new owner to build a small marina and relocate the existing ferry terminal, which presently links Tróia to Setúbal. The number of allowable touristic beds set in the contract was about 8400, in clear violation of the PROTALI. The property was eventually sold to the SONAE Group.

Also in 1997, the Portuguese government included part of the Tróia ADT in the proposed Natura 2000 site of the Sado Estuary (Site PTCON0011), which includes the local Caldeira tidal lagoon, and presented it to the European Union as part of the first list of proposed Natura 2000 sites within the framework of the European Habitats Directive (Council Directive 92/43/EEC of 21 May 1992, on the conservation of natural habitats and of wild fauna and flora).

By doing this, the government simultaneously proposed and subscribed seemingly diverging development options for the same area of territory.

3. The First Strategic Environmental Assessment

In 1998, SONAE asked IMAR to undertake a broad Strategic Environmental Assessment (SEA) of Tróia. The goal of the SEA was not to return Tróia to a natural state, nor to justify a predefined project. Instead, the goal was to identify environmental boundaries, constraints and opportunities that:

1. Ensured no net environmental loss, that is, a development model that created no permanent negative effects on the natural environment (any new significant impactes must therefore be eliminated or compensated in kind);
2. Allowed for a viable economic enterprise, complying with existing legal rules and social aspirations;
3. Assumed the natural values and heritage fully as an asset rather than an inconvenience;
4. Set guidelines for further project concept and definition.

The SEA covered the identified key issues at broad planning level:

- Coastal geology and dynamics, including historic and recent evolution of the coastline;
- Terrestrial ecology, specifically land use, vegetation cover, and soil pH as indicators of system's age, stability, and maturity;
- Legal framework, identifying the guidelines and restrictions included in management plans for the area.

The SEA showed that the target area has very different ages: from very recent sands and dunes, less than a few decades old, on the NW tip of the peninsula, to millennial soils on the SE part of the study area (estuarine margin), where remains of the 2000 year old roman settlement can still be found.

The different ages of the system match two other concurrent NW-SE gradients of increasing stability and maturity of the system: from high pH biogenic sands, to high humic acid content soils, and from dynamic sea and wind driven dunes to pinewoods with a dense shrub substratum.

The integration of environmental information allowed for the definition of a sensitivity gradient, increasing from the SE part of the study area, towards the NW tip of the peninsula (Figure 2).

Based on this sensitivity gradient, and on the actual occupation of the territory, the area was zoned into three occupation levels: no occupation, restricted occupation, and "free" occupation" (Figure 3).

The criteria that framed this zoning were:

1. Maximum sensitivity of the whole dune system;
2. Protection buffers:
   - 200m along the Caldeira lagoon banks;
   - 100m on the estuarine margin;
3. Exclusion of developped and/or infrastructured areas;
4. Normalization of limits to the existing roads.

Simultaneously, the entrepreneur was defining a concept of development for the area (Tróia masterplan) that integrated, in a dynamic and iterative way, the environmental information being produced.

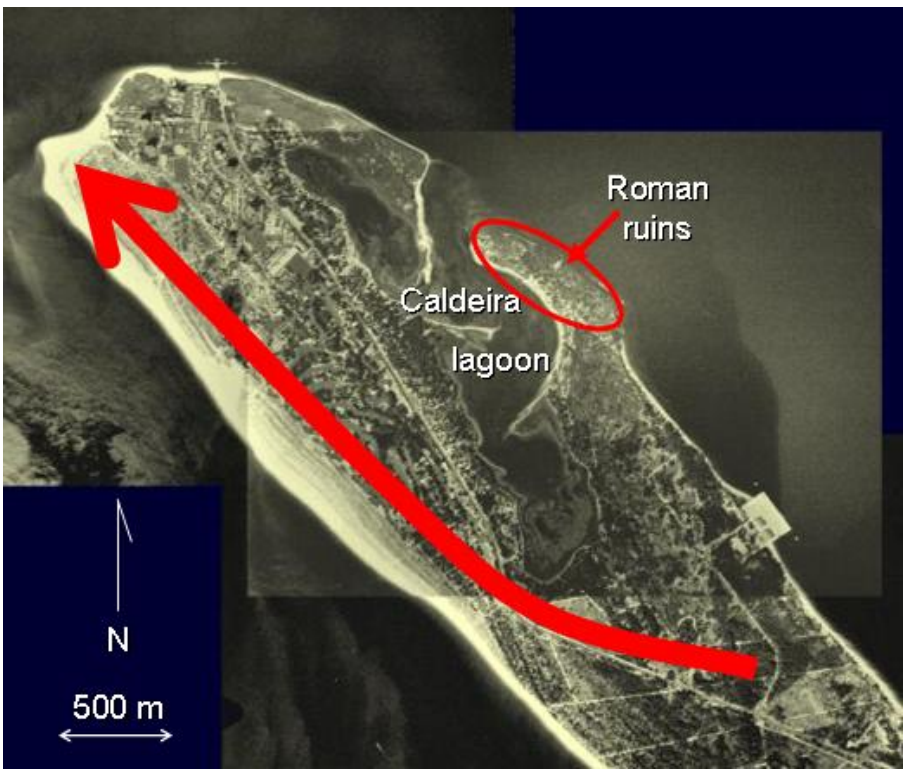

Figure 2. NW tip of the Tróia peninsula, Portugal. The arrow indicates the environmental sensitivity gradient of the territory (increasing from SE to NW) in terms of: maturity (from areas with low pH and high humic acid contents to biogenic sands with high pH); age (from millenary soils to areas only a few decades old); and stability (from pinewoods with a dense shrub substratum to eolian and hydraulic dunes).

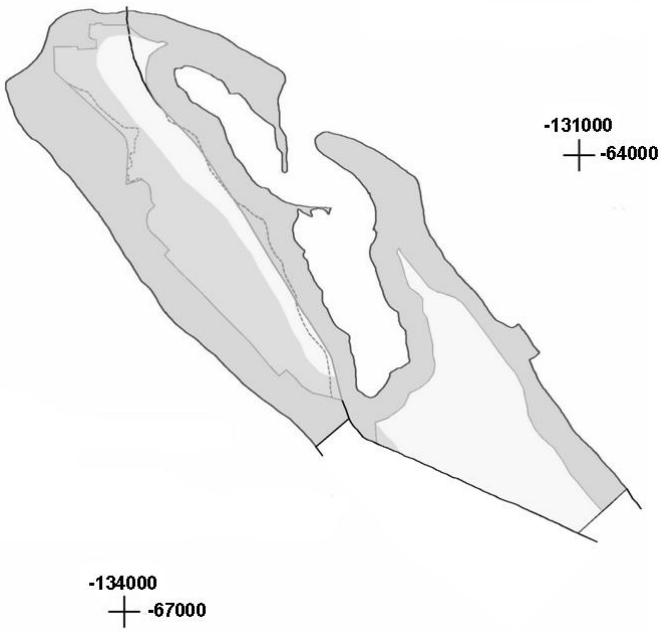

Figure 3. Zoning defined in the preliminary Strategic Environmental Assessment: dark grey, no occupation; lighter grey, restricted occupation; white, "free" occupation; dashed line, limit of the constructed/infrastructured area. IPCC Hayford-Gauss projection, datum 73.

A set of guidelines and restrictions were proposed, for aspects such as construction and occupation densities with the objective of: 1) preventing soil/habitat loss through erosion (marine or aeolian); 2) stimulating Northward progression of maturing ecosystems; 3) safeguarding the inner dune system and the coastal lagoon.

These guidelines included:

- Totally safeguarding an area of successionally mature vegetation (pristine area of pinewood) located SE of the coastal lagoon;
- Preserving the foredune system (embryonic and primary dunes);
- Managing accesses to the beach and coastal lagoon through a system of raised boardwalks;
- Insuring the maintenance of the coastal and estuarine sediment drift patterns, not allowing the construction of any hard structures on the marine side of the peninsula;
- Defining the preferential (least impact) location of for the construction of the new marina on the estuarine margin, and proposing construction and exploitation solutions such as sediment transport monitoring and sediment by-passes;
- Defining specific construction guidelines for the resort, such as the generalized use of decks, to allow for the circulation of sand and plant propagules.

In January 1999, the entrepreneur SONAE Turismo presented to the Portuguese government a Proposal of Investment that included the masterplan for the future resort, and the SEA. The proposal included a total load of 7250 beds, below the 7300 limit stemming from PROTALI, and a density distribution that moved a substantial load from the northwest sea facing area of the peninsula to the southeast estuarine margin, in accordance with the actual prevailing ecological conditions in the development area.

4. THE SECOND STRATEGIC ENVIRONMENTAL ASSESSMENT

In 2000, the Portuguese government celebrated the contract with the entrepreneur and ratified the municipal Urbanization Plan (PU) for Tróia that defined zoning, occupation levels and construction guidelines. Astonishingly. the PU, of public initiative, granted 7430 beds for this area, i.e. higher urban loads than the private entrepreneur had previously settled for. It also placed highest loads and densities on the oceanfront, despite the fact that it is more recent, dynamic, and, therefore, sensitive, than the remaining terrestrial area. The PU only required the Environmental Impact Assessment (EIA) of four individual projects in the Tróia peninsula, including the new marina and the relocation of the existing ferry terminal. Nonetheless, the IMAR proposed, and the entrepreneur accepted, the realization of a full SEA for the resort, including the environmental characterization of the whole area and descriptors the resort might influence:

- Hydrogeology;
- Quality of water and sediments in the Sado Estuary;
- Coastal dynamics;
- Mathematical modeling of wave and tide hydrodynamics;
- Intertidal environments;
- Vegetation (including lichens);
- Fauna: amphibians, reptiles, birds and mammals (including the resident population of bottlenose dolphin of the Sado estuary);
- Archaeology;
- Socio-economy;
- Mobility;
- Landscape;
- Noise.

These studies were conducted at different spatial scales, ranging from local (e.g. noise) to regional evaluations (e.g. socio-economy and mobility).

This SEA was concomitant with the development of the various urban plans by the entrepreneur. The plans were designed iteratively, through constant information exchange between the proponent, the designers, and the environmental team. Upon its completion, this SEA included:

1. a comprehensive environmental characterization of the resort, the whole of the resort and each component;
2. a full EIA of the two first detailed projects (marina and new ferry terminal);
3. detailed guidelines for the various projects to be developed, including construction guidelines and norms;
4. an adaptive environmental management system, and;
5. several monitoring and management plans for sensitive environmental indicators.

Because of the legal framework, prior to the entry into force of Directive 2001/42/EC (on the *Assessment of the effects of certain plans and programmes on the environment*), the SEA had to be presented as an annex to the Environmental Impact Assessment of the projects of the new marina and ferry harbour, instead of framing both EIA's.

5. CHARACTERISTICS OF TRÓIA'S SEA'S

The Strategic Environmental Assessments of Tróia constitute interesting case-studies because of a number of concurrent factors.

5.1. Absence of a legal framework:

Both SEA's (the first SEA took place in 1998 and the second SEA began in 1999 and was completed in 2002) were undertaken before the existence of a legal framework on SEA. The fact that these SEA were the first of the kind in Portugal, created noticeable difficulties for the authorities, who had trouble dealing with the amount and type of information produced/provided.

5.2. Previous political option for the territory:

At the time the SEA's were being developed there was no definite Program or Plan for the area, but there was a previous political option for the territory, of high density tourism development. This option, defined in the 1993 PROTALI, was not "fixed" and could translate in as much as c. 7300 tourism beds in the target area.

At the same time, large scale constructions and infrastructured areas already existed (remains of the tourism development from the 1960's), that necessarily shaped any future interventions. Simultaneously, significant parts of the peninsula had also been classified by the Portuguese government as protected areas for nature conservation (both in national and European terms).

5.3. Involvement of the relevant stakeholders:

Unlike most cases, the area was owned by a single stakeholder (SONAE Turismo), which eased and facilitated direct communication and dialogue capacity at the key stakeholder/owner level by the environmental team.

All the other relevant stakeholders were also involved in the process, regularly being informed and consulted on the developments and findings of the SEA.

The stakeholders involved in the process were: the three municipalities directly "affected" by the resort (Grândola, Alcácer do Sal, and Setúbal); the public agencies responsible for nature conservation, at a national level (ICN) and locally (RNES); port authorities (APSS); and relevant national and local environmental NGO´s (LPN, GEOTA, QUERCUS, LASA).

5.4. Driven by scientific information:

The SEA's were driven by scientific information, and effectively shaped the conception and final design of the resort. The proponent understood how to integrate scientific/environmental information into its interests and priority settings.

6. CONCLUSIONS

This SEA process was a key decision-support tool for planning in the Tróia peninsula, and it could have been taken even further. It was not totally EIA driven, because the promoter understood the interest of using scientific information to streamline the global design and performance of a tourism resort located in such a dynamic environment as a coastal area, instead of focusing only on two individual projects. It was not totally "strategic" either, since previous political options had already narrowed the range of possible development options.

However, SEA results were changed by local/central government decisions, namely the 2000 Tróia Urbanization Plan, granting "more" than stakeholder/owner's proposal, in terms of loads and densities.

A Plan such as the Tróia PU would – today – be subject to a specific SEA that, besides the political management options, would gather and encompass a wide range of environmental information. For Tróia, this was not the case and, as a result, we have a higher load than the entrepreneur had accepted, a load distribution that, in some places, goes against the sensitivity of the environment, and internal inconsistencies that lower order management instruments (detail plans – PP´s) are now trying to deal with.

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